

Amendments (Clean copy)

In response to the above mentioned Office action please amend the spec as follows:

In the Specification

After the 1 full Paragraph on spec p.13 and before the Heading letter "G"

Please insert the following as a new paragraph: ---The free ferromagnetic layer can be comprised of: CoFe, CoFe/NiFe, or Co/NiFe and has a thickness of 20 to 30 Å.---

In the Claims

1. (Amended) A method for forming a giant magnetoresistive (GMR) sensor element comprising:

forming a seed layer over a substrate, the seed layer being formed of a magnetoresistive resistivity sensitivity enhancing material selected from the group consisting of nickel chromium alloys, nickel -chromium-copper alloys and nickel-iron-chromium alloys;

forming a metal oxide buffer layer over the seed layer; said metal oxide buffer layer comprised of NiO or alpha Fe₂O₃;

forming a free ferromagnetic layer over said metal oxide buffer layer;

forming a non-magnetic conductor spacer layer over said free ferromagnetic layer;

forming a pinned ferromagnetic layer over the non-magnetic conductor spacer layer ; and

forming a pinning material layer over the pinned ferromagnetic layer; and

forming a capping layer over said pinning material layer.

8. (Amended) The method of claim 1 wherein said free ferromagnetic layer is comprised of: CoFe, CoFe/NiFe, or Co/NiFe and has a thickness of 20 to 30 Å.

14. (Amended) The method of claim 1 wherein the giant magnetoresistive (GMR) sensor element is selected from the group consisting of simple spin valve magnetoresistive (SVMR) sensor elements, synthetic antiferromagnetically biased giant magnetoresistive (GMR) sensor elements, simple spin filter giant magnetoresistive (GMR) sensor elements and spin filter synthetic antiferromagnetically biased giant magnetoresistive (GMR) sensor elements.

16. (Amended) The method of claim 15 wherein: said high conductivity layer is comprised of Cu or Cu-Ni and has a thickness between 10 and 30 Å.

17. (Amended) The method of claim 15 wherein said pinned ferromagnetic layer is composed of a three layer structure comprising: (a) a lower AP layer, a middle non-magnetic conductor spacer layer and an upper AP layer wherein said middle non-magnetic conductor spacer layer induces anti-ferromagnetic coupling between said lower AP layer and said upper AP layer which enhances the Pinning effect.

21. (Amended) The method of claim 18 wherein said pinned ferromagnetic layer is composed of a three layer structure comprising: (a) a lower AP layer, a middle non-magnetic conductor spacer layer and an upper AP layer wherein said middle non-magnetic conductor spacer layer induces anti-ferromagnetic coupling between said lower AP layer and said upper AP layer which enhances the Pinning effect.

25. (Amended) The spin valve giant magnetoresistance sensor of claim 18 wherein said free ferromagnetic layer is comprised of: CoFe, CoFe/NiFe, or Co/NiFe and has a thickness of 20 to 30 Å.